UPDATE

Disease Non-battle Injury in the Korean Theater

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A Publication of the 18th MEDCOM Preventive Services Directorate
"Preserving the Fighting Strength"

Editor's Note

Welcome to the second edition of the 'DNBI Update.' This month we focus on influenza. The season appears to be nearing its peak in the United States and elsewhere, making it a timely topic. Information on the Korean experience is also included. Another article detailing recent experience with Korean Hemorrhagic Fever and rodent surveillance follows. As always, we welcome your feedback. Please address any comments or ideas for future issues to Laura.Pacha@kor.amedd.army.mil.

2001-2002 Influenza Experience

New Influenza Virus Subtype Identified

A new subtype of influenza A virus has been identified. It appears to be a new combination of components from recently circulating virus forms. Influenza viruses are composed of neuraminidase (N) particles and hemaglutinin (H) particles. Over the last few influenza seasons, the major circulating influenza A subtypes were H1N1 and H3N2. The new subtype is H1N2, and has been confirmed in England, Israel and Egypt in the last few months from both hospital and community sources, including three school outbreaks. Most of the cases so far have been in the 5–14 year age range, a group with less accumulated influenza immunity.

Type A influenza viruses periodically undergo antigenic shifts/drifts, which makes them capable of causing both epidemics and pandemics. This is an unlikely consequence of this new subtype, however, since the H & N components are so similar to those in already circulating virus forms and those represented in the current vaccine. Populations are likely to have some degree of immunity already. While recent anthrax cases have increased awareness of bioterrorism, there is no evidence this new influenza strain is a product of anything other than natural occurrence.

USFK Influenza Vaccination Status

Influenza vaccine use for this season is at an all-time high when compared to previous years. Despite the late arrival, usage is up by 14% over last year at this time. Over 30,700 individuals have received the vaccine.

Influenza Experience

Despite the emergence of the new influenza subtype, the majority of illness seen around the globe has been due to Influenza A H3N2 virus. Nearly 98% of all influenza seen by sentinel physicians in the

Influenza-Like Illness Case Definition

- Fever (=/>100.5°F) **AND**
- Cough **OR** sore throat (>72 hours duration)
- **OR** patients with clinical radiographic evidence of acute non-bacterial pneumonia

United States has been caused by this virus, according to the Centers for Disease Control (CDC). The Korean Ministry of Health (KNIH) reports a different experience, however. Their sentinel physician surveillance program has detected 23 influenza cases, all of which were influenza A H1N1 viruses. This season's vaccine, however, was well-matched to both strains.

Sentinel physicians in the US report 2.2% of all visits are for influenza-like illness. Review of January 2002 ADS diagnoses for 18th MEDCOM primary and urgent care clinic visits demonstrate approximately 16% of these visits were for respiratory illness. Less than one quarter of these visits were given a diagnosis of influenza or influenza-like illness. Despite this large number of respiratory illness visits, no influenza cultures have been submitted to the 121 Laboratory. Sentinel physicians may not be seeing patients who meet the criteria for culturing. No outbreaks of influenza-like illness or acute respiratory illness have been reported to the 18th MEDCOM Preventive Services Directorate. Osan Air Force Base reports only 2 confirmed influenza cases, both Influenza A H1N1.

Military Importance of Influenza

While it is easy to think of 'the flu' as something to be 'gotten over,' it is actually a disease with significant military medical importance that providers must not overlook. A few days off work for an illness may not be significant in the civilian population, but can seriously impact the functioning of a unit—even if only one or two people are down with the disease. Crowded military living situations, such as barracks, can increase the speed at which influenza can spread through the population. If the vaccine is ineffective against some strains, we are one of the first populations to demonstrate that failure. And deployments to various parts of the world can impact the variants to which one is exposed and thus highlight strengths and weaknesses of the vaccination program. This information makes an important contribution to the World Health Organization (WHO) vaccine component planning for the next season. Additionally, several bioterrorism agents are known to cause a 'flu-like illness.' The military, then, serves an important role as a sentinel population for a disease that can seriously impact mission readiness. This importance is acknowledged through the Department of Defense (DoD) investment in active influenza and influenza-like illness surveillance.

Surveillance Program/What Providers Need to Know

The DoD assigned the mission of coordinating tri-service influenza surveillance to the Air Force. 18th MEDCOM has developed a sentinel physician program that coordinates with Osan, the local sentinel site in the DoD Influenza Surveillance

Program. Camp Casey Troop Medical Clinic and the Seoul Army Community Hospital Ambulatory Care Clinic each have assigned physicians (a primary and an alternate) who collect throat swabs in viral isolation tubes on patients who meet the definition of influenza-like illness (see text box for details). The test is then ordered in CHCS under 'culture, influenza' and a comment, 'influenza surveillance protocol' is entered. Swabs collected within the first 72 hours of illness are most desirable, as viral load decreases with time. These specimens will then be sent on to Osan for analysis. An influenza-like illness form has been developed and is included at the end of this publication. One copy can be used as the patient encounter form; another copy should be submitted with the influenza culture, and the third copy should be faxed to the 18th MEDCOM Preventive Services Directorate (DSN: 736-3028; commercial: 02-7916-3028).

Viral isolation tube ordering information

The viral isolation tubes contain a modified Hanks balanced salt solution and can be ordered as follows:

Becton-Dickenson:
#4361514

MLA catalog number 14-910-46
POC: Vicki Jones
Telephone: 805-835-9000
FAX: 805-835-9020
Email: mdrnlab@modernlab.com

Note: MLA accepts IMPAC cards!

Resources:

MAJ A. Hemingway, Chief, Community Health Nursing

"Know Your Enemies: Is it a cold, the flu, or anthrax?" patient education sheet developed by the Centers for Disease Control and Prevention is included at the end of this publication.

Centers for Disease Control and Prevention. Update: Influenza Activity—United States, 2001-02 Season. MMWR 2002;51:78-80, 91.

AFIERA/RSRH. DoD Global Influenza Surveillance Weekly Update: 7 FEB 2002.

Eurosurveillance Weekly, Issue 6, 7 February 2002.

Public Health Laboratory Service. Frequently Asked Questions About the Flu. Available on the web at: http://www.phls.co.uk/facts/influenza/flufaq.htm#top.

18th MEDCOM Influenza-Like Illness Survey Protocol.

European Influenza Surveillance Scheme.

Smoking Cessation and Respiratory Illness

Often a respiratory illness can motivate smokers to quit. Providers are encouraged to refer such patients to the smoking cessation courses provided by the Area Health Promotion Coordinator. These trained professionals offer support and teach coping mechanisms for quitting smoking—vital elements for patient success that a busy provider cannot always offer. They then coordinate prescriptions for patients interested in pharmacological assistance with smoking cessation.

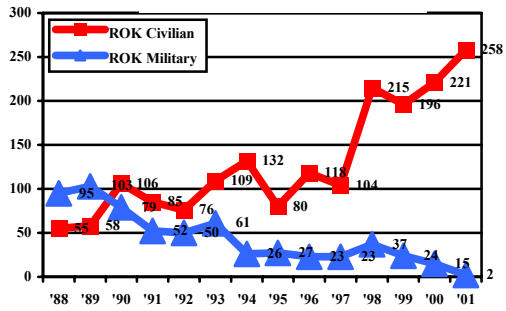
Classes on a variety of additional topics can also be arranged, such as heat injury prevention, STD prevention, weight loss, to name just a few. Please call for more information.

AREA I:	**Mr. Kenneth Cobb**	**730-3542**	**AREA III:**	**CPT Kathi Hill**	**753-8355**
AREA II:	**Ms. OkHee Suh**	**736-8920**	**AREA IV:**	**Ms. Victoria Knighton**	**764-5213**

Korean Hemorrhagic Fever

Korean Hemorrhagic Fever (KHF) or Hemorrhagic Fever Renal Syndrome (HFRS) is caused by members of the Hantavirus group. These viruses are worldwide in distribution. Two viruses are seen here: Hantaan virus, the more familiar and more virulent one, and Seoul virus, which causes milder disease and thus is less frequently diagnosed.

Figure 1



KHF has accounted for 196 - 258 cases diagnosed annually from 1998-2001 among Korean nationals [Fig. 1 (provided by the Korean Ministry of Health and Ministry of Defense)]. This virus carries a >10% mortality rate among US soldiers. The virus is transmitted by aerosolized rat excreta (urine, feces, and saliva) or rodent bites. The striped field mouse (*Apodemus agrarius*) (Fig. 2), is the principal reservoir for Hantaan virus, and inhabits banks separating rice paddies and other grassy/brushy habitats associated with water. These habitats also include non-agricultural disturbed environments that are often associated with military training (Fig. 3) and thus a common source of infection in US service members.

Fig 2: Striped field mouse

Fig 3: KTC

Fig 4: Norway Rat with young

Commensal rats (Norway and roof rats) (Fig. 4) are reservoirs for Seoul virus, a less virulent form of HFRS (<1% mortality rate). In fact, this form often goes undetected since it generally causes a mild, flu-like disease.

During the Korean War, there were >800 cases of HFRS reported annually with >10% mortality rate. A Hantavirus vaccine is currently approved for local nationals, but not for US soldiers. Due to the severity of the disease, ROK soldiers are routinely immunized. Thus, rates of infection among ROK military have steadily declined (Fig. 1).

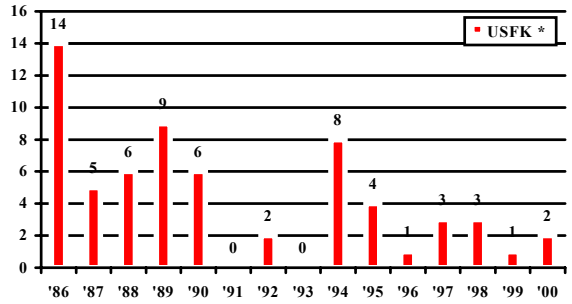
Since 1986, there has been an average of 3 cases annually in USFK soldiers, with a high of 14 during one exercise in 1986 (Fig. 5). While few USFK personnel are reported infected with rodent-borne diseases annually during armistice, this scenario may rapidly change during political change or in the event of an armed conflict.

Peak transmission periods for HFRS occur during October through December. The incubation period may exceed 40 days, so the location of transmission is often difficult to ascertain without a thorough epidemiological investigation. Differentiation between Hantaan virus and Seoul virus disease is not done for local nationals, primarily due to the difficulty and cost of the serological testing.

Information about the prevalence of infectious agents in rodent populations provides a more accurate assessment of the health threat to USFK personnel, enhances our ability to

provide advance warning of potential changes, and leads to early diagnosis and interventions that will significantly reduce morbidity/mortality. To accomplish this, the Medical Detachments (PM), 168th MED BN (AS) and PM Services, 2ID, in collaboration with the Preventive Services Directorate, CHPPM-Japan and the Air Force PM Detachment-Okinawa, initiated rodent surveillance in October 2000 at selected Eighth US Army training sites and USFK installations. The striped field mouse accounted for >95% of all rodents collected at training sites and in field environments on major installations. The highest rates of infection were observed at field training sites near the DMZ, ranging from 0 - >60% of the rodents seropositive for Hantaviruses.

Fig 5: KHF Incidence in USFK Troops



To minimize exposure to rodent-borne diseases, rodents are not processed in the field and are transported directly to Korea University where they are assayed for Hantaviruses and other rodent-borne diseases (scrub typhus, leptospirosis and murine typhus) as part of the USFK rodent-borne disease surveillance program. Rodent surveillance also provides training for 91S soldiers to ensure that they are prepared to conduct PM missions.

Also, on average, Eighth US Army pest controllers trap and dispose of 35-50 rodents (mostly roof rats and Norway rats) monthly in Yongsan and nearby installations. Live-trapped rodents are assayed for Hantaviruses similarly to field collected rodents. Data indicates that >10% of the rats collected at Yongsan are infected with Seoul virus.

Since 2000, Preventive Services has conducted epidemiological investigations to determine the location of infection as well as identify associated rodent infection rates and risk factors responsible for infection (Table 1). According to Dr. Song, Assistant Professor, Department of Microbiology, Korea University, rodent populations with Hantavirus infection rates >20% are considered high-risk. However, other factors, e.g., weather, temperature, and types of exposure must be considered.

Steps to Reduce Risk of Contracting KHF in the Field

- Rodent proofing food, waste, and rubbish
- No storage of food outside of mess facility
- Clearing brush to include 20 meter outside perimeter
- Raised platforms for semi-permanent tentage (18")
- Remove wastes >1 km from site
- Personal hygiene (hand washing)
- Prompt cleaning of soiled clothing
- Wet-down of roadways when possible
- Prohibit use of vegetation for camouflage
- Do not use bivouac sites with previous cases

Studies in the US also indicate that disturbed areas (park camp sites) are at greater risk since there appears to be greater competition for limited habitat, increased fighting and thus higher infection rates among the rodents. Thus far, we have not developed a study to indicate the relative risk of "normal" agricultural habitat and "disturbed" training site habitats. Furthermore, no studies have been done to determine methods that would decrease the rodent infection rates, e.g., trapping-out rodent populations to reduce competition for habitat.

The Preventive Services Directorate obtains weekly, monthly and annual data from the Korean National Institute of Health that provides for historical and current disease trends for Hantaviruses. These data in addition to the rodent surveillance data may provide for a better understanding of risk of infection by Hantaviruses in Korea.

--Contributed by COL Terry Klein, Ph.D.

DISEASE TRENDS

18th MEDCOM Reportable Events Program

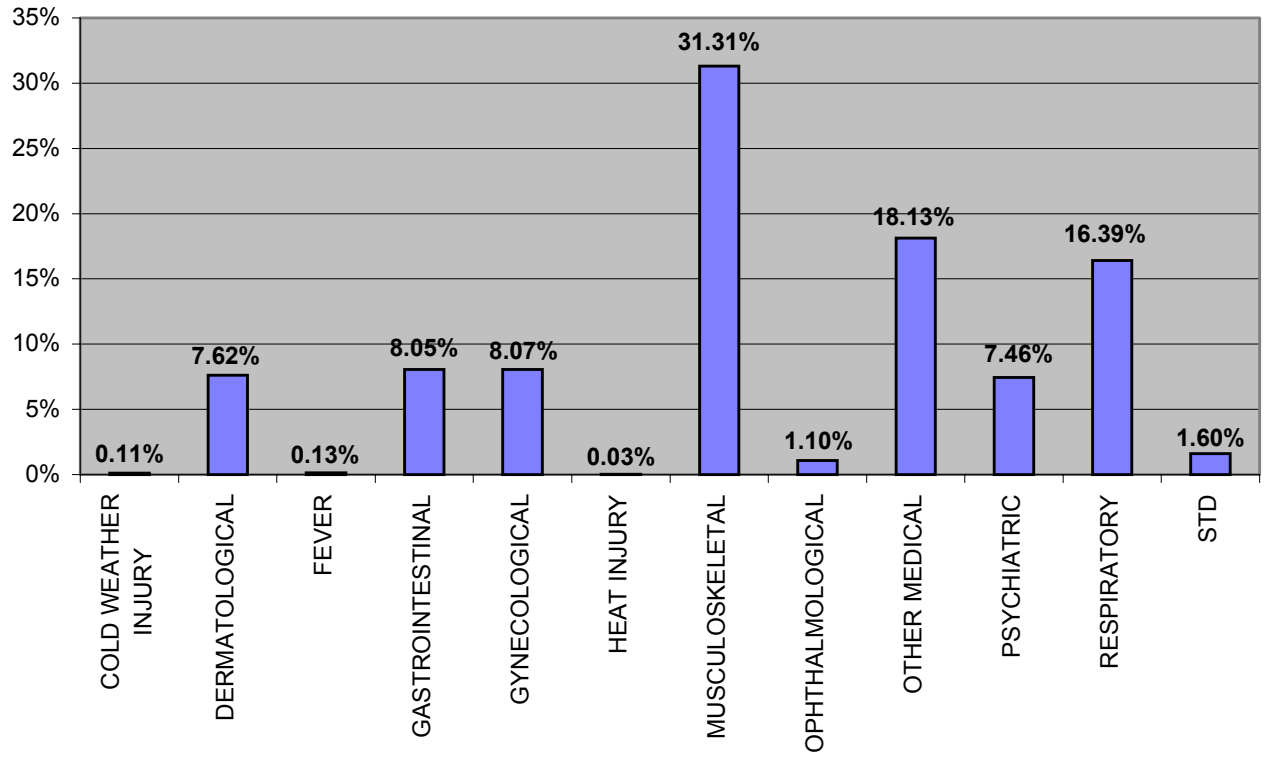
Selected Reportable Events Incidence Summary

JAN 2002

Reportable Condition	Area I	Area II	Area III	Area IV	Totals
Trichomonas	NR	3	NR	NR	3
Chlamydia	13	13	10	2	38
Herpes simplex	NR	1	NR	NR	1
Gonorrhea	3	4	3	1	11
STD Totals	16	21	13	3	53
Tuberculosis (active disease)	0	0	0	0	0
Tuberculosis (recent converter)	19	5	3	1	28
Animal Bites	NR	2	NR	NR	0
Cold Weather Injuries	2	NR	NR	NR	2
Suicide Gesture/Attempt	1	1	0	1	3
Deaths from all causes	0	0	0	0	0

NR=None Reported

DNBI January 2002



Editor's Note: Data for chart above was generated through a manual review of KG-ADS diagnoses given each patient seen in 18th MEDCOM primary care, urgent care, and women's health clinics. Only one visit for the same disease or injury category was counted. Only KG-ADS data completed within a week or less of the patient visit was accessible. 3740 visits met this criteria. And while DNBI tracking traditionally differentiates recreational injuries from training injuries and MVA injuries, the lack of information pertaining to cause of injury in KG-ADS made this impossible to determine.

Reported Events Summary, USFK: January 2002

Conditions		Jan 2002	Cum 2002	Cum 2001
STD	Chlamydia	38	38	45
	Gonorrhea	11	11	26
	Herpes Type II	1	1	2
	HIV/AIDS	0	0	
	Trichomonas	3	3	
	Syphilis	0	0	1
Infectious Diseases	Campylobacter	0	0	
	Cholera	0	0	
	E.Coli 0157:H7	0	0	
	Encephalitis	0	0	
	Giardiasis	0	0	
	Hepatitis A	0	0	
	Hepatitis B	0	0	
	Hepatitis C	0	0	
	Influenza	0	0	
	Measles	0	0	
	Meningitis (Meningococcal)	0	0	1
	Pneumococcal Pneumonia	0	0	
	TB, Active	0	0	1
	PPD Conversion	4	4	19
	Salmonellosis	2	2	3
	Shigellosis	0	0	
	Typhoid Fever	0	0	
	Varicella, adult	2	2	2
Vector-borne Diseases	Dengue Fever	0	0	
	Ehrlichiosis	0	0	
	HFRS	0	0	
	Japanese Encephalitis	0	0	
	Leptospirosis	0	0	
	Malaria	1*	1*	12^
	Rabies	0	0	
	Scrub Typhus	0	0	
Injuries	Animal Bites	2	2	17
	Cold Injury	2	2	
	Heat Injury	0	0	5
	CO Poisoning	0	0	
	Lead poisoning	0	0	
	Hearing Loss	0	0	
Immunization	VAERS	0	0	
	Influenza	0	0	

Notes

**Disease contracted outside ROK*

^*Indicates cases diagnosed while in ROK; additional 12 cases were diagnosed after return to US*

Please refer to the reverse of the 18th MEDCOM IHO Reportable Events Worksheet for a complete listing of reportable events. A copy of this form is included at the end of this document.

Know Your Enemies!

Is it a cold, the flu, or anthrax?

Many illnesses begin with influenza (flu)-like symptoms, which include fever, tiredness, and a dry cough. And most are not caused by flu — or by anthrax. Because these symptoms can be caused by many diseases, it can be difficult to tell what caused you to become sick. Your best protection against the flu is an annual flu shot.

You should especially get this protection if you are 65 years old or older, or have certain medical conditions that put you at high risk of flu-related complications. The flu shot can prevent illness caused by influenza but cannot prevent flu-like illness caused by other diseases.

	Cold	Influenza (Flu)	Inhalational Anthrax
Illness	Respiratory (breathing) illness caused by viruses	Respiratory (breathing) illness caused by influenza viruses	Respiratory (breathing) illness caused by anthrax bacteria
Treatment	Treat symptoms. Does not respond to antibiotics.	Antiviral flu medications started in the first 2 days of illness can reduce the severity and duration of influenza illness.	Antibiotics are recommended.
Vaccine	None	Annual flu shots can reduce your risk of getting the flu.	Vaccine recommended only for military personnel and certain other groups who's jobs (e.g., laboratory workers) put them at risk.
Transmission	Easily spread from person to person when an infected person touches someone else or sneezes or coughs.	Easily spread from person to person when an infected person sneezes or coughs.	Cannot be spread from person to person.
Symptoms			
Fever at or above 100EF	Uncommon in adults and older children	Usual and can last 3 to 4 days	Usual
Headache	Usual	Usual with sudden onset, and can be severe	Sometimes
Muscle Aches	Mild	Usual, and often severe	Sometimes
Tiredness and Exhaustion	Mild	Usual with sudden onset, can be severe, and can last 2 or more weeks	Usual
Runny Nose	Usual	Usual	Rare
Cough	Usual	Usual, and can become severe	Usual
Chest Discomfort	Uncommon	Uncommon	Usual
Vomiting	Uncommon	Uncommon in adults but more likely in very young children	Usual

Information derived from the November 9th MMWR article: Notice to Readers: Considerations for Distinguishing Influenza-Like Illness from Inhalational Anthrax Vol 50, No 44; 986-6 11/09/2001

For more information, ask your health care provider or contact the Centers for Disease Control and Prevention

Website www.cdc.gov/nip/flu

Immunization Hotline

English 1-800-232-2522 ! *Spanish* 1-800-232-0233 ! *Hearing Impaired* 1-800-243-7889

DoD Global Influenza Surveillance Program
Project Gargle Questionnaire

Complete Form if a Project Gargle swab was accomplished. Place original in patient chart, one copy to lab and fax one copy to Preventive Medicine (DSN 736-3028). Annotate in CHCS that swab is for Project Gargle.

PATIENT DATA:

Last Name _____ **First Name** _____

SSN (last four only) ☐☐☐☐

Rank ☐☐☐

Date of Birth ☐☐ ☐☐ ☐☐ (Day Month Year)

Gender
- ○ Male
- ○ Female

Race
- ○ Caucasian
- ○ African American
- ○ Hispanic
- ○ Asian
- ○ American Indian
- ○ Other

Category
- ○ Active Duty
- ○ Family Member
- ○ Civilian Employee
- ○ Other

Branch
- ○ Army
- ○ AF
- ○ Navy
- ○ Marine
- ○ KATUSA
- ○ DoD Civ

Duty Station/Base Camp:_____

Unit: Battalion _____ **Company**_____

CLINICAL DATA:

Onset of Symptoms ☐☐ ☐☐ ☐☐ (Day Month Year)

Temperature _____ ○ F

Received Influenza Vaccine this season? ○ Yes ○ No

Date Vaccinated ____/____/_____

Symptoms (mark all that apply)
- ○ Sore throat
- ○ Cough
- ○ Rhinorrhea
- ○ Myalgia
- ○ Chills
- ○ Headache
- ○ Recent Travel
- ○ Co-worker sick
- ○ Family Member sick

OTHER DATA:

Culture Result
- ○ Positive
- ○ Negative

Specimen Collection Date ☐☐ ☐☐ ☐☐ (Day Month Year)

Isolate: _____

Clinical radiographic evidence of non-bacterial pneumonia ☐

Quarters ☐ **24 hours** ☐ **48 hours** ☐ **72 hours**

Patient Admitted ☐

Clinic_____

Health Care Provider Name _____ **Phone #** _____

POC: LTC Lee, Hee-Choon, PM Consultant, 736-3036, FAX 736-3028 heechoon.lee@kor.amedd.army.mil